

WHAT IS CLAIMED IS:

- 1 1. A planetary gear structure provided in a vehicle transmission
- 2 comprising:
 - 3 a carrier possessing a plurality of circumferentially spaced apart
 - 4 bores;
 - 5 a plurality of pinion shafts each adapted to receive a pinion gear,
 - 6 each of the pinion shafts being positioned in one of the bores in the carrier
 - 7 so that the pinion shafts are circumferentially spaced apart from one
 - 8 another; and
 - 9 at least three stopper plates separate and spaced apart from one
 - 10 another, each of the stopper plates being positioned between adjoining pairs
 - 11 of the pinion shafts, each of the stopper plates engaging two different ones
 - 12 of the pinion shafts to rotationally fix the pinion shafts against rotation
 - 13 relative to the carrier.
- 1 2. The planetary gear structure according to Claim 1, further
- 2 comprising a slit provided in an outer surface of each of the pinion shafts,
- 3 each stopper plate engaging the slit in two different pinion shafts.

1 3. The planetary gear structure according to Claim 1, wherein the
2 stopper plates possesses oppositely positioned side portions which each
3 engage one of the pinion shafts.

1 4. A planetary gear structure comprising:
2 a carrier provided with a plurality of circumferentially spaced apart
3 bores;
4 a plurality of pinion shafts each adapted to receive a pinion gear,
5 each of the pinion shafts being positioned in one of the bores in the carrier
6 so that the pinion shafts are circumferentially spaced apart from one
7 another, each of the pinion shafts being provided with a slit; and
8 a plurality of separate stopper plates each arranged between
9 adjoining pairs of the pinion shafts and each engaging the slit in two of the
10 pinion shafts to fix the pinion shafts against rotation relative to the carrier.

1 5. The planetary gear structure according to Claim 4, wherein each
2 stopper plate has a pair of side portions extending in a radial direction of the
3 carrier, each of the side portions of each stopper plate engaging the slit in
4 one of the pinion shafts.

1 6. The planetary gear structure according to Claim 5, wherein each
2 stopper plate has an inner end portion and an outer end portion, the inner
3 end portion of each plate engaging an inner circumferential wall of the
4 carrier and the outer end portion of each stopper plate engaging an outer
5 circumferential wall of the carrier.

1 7. The planetary gear structure according to Claim 4, wherein each
2 pinion shaft is engaged by only a single one of the stopper plates.

1 8. The planetary gear structure according to Claim 4, wherein each
2 pinion shaft is engaged by two of the stopper plates.

1 9. The planetary gear structure according to Claim 4, wherein the
2 plurality of pinion shafts comprises more than three pinion shafts.

1 10. The planetary gear structure according to Claim 9, wherein the
2 plurality of stopper plates is no more than three stopper plates.

1 11. The planetary gear structure according to Claim 4, wherein the
2 plurality of pinion shafts is no more than three pinion shafts.

1 12. The planetary gear structure according to Claim 11, wherein the
2 plurality of stopper plates is no more than three stopper plates.

1 13. A planetary gear structure comprising:
2 a carrier having a cylindrical portion;
3 a plurality of pinion shafts mounted in the carrier along an axial
4 direction of the cylindrical portion; and
5 a stopper plate arranged between a pair of the pinion shafts so as to
6 fix each of the pinion shafts against revolution about its own respective axis.

1 14. The planetary gear structure according to Claim 13, wherein the
2 stopper plate has a pair of side portions, each of which extends along a
3 radial direction of the cylindrical portion and each of which engages one of
4 the pinion shafts.

1 15. The planetary gear structure according to Claim 14, wherein the
2 pinion shafts have a slit on an outer surface for receiving one of the side
3 portions of stopper plate.

1 16. The planetary gear structure according to Claim 15, wherein the
2 stopper plate has an inner end portion and an outer end portion, the inner

3 end portion of the stopper plate engaging an inner circumferential wall of the
4 carrier and the outer end portion engaging an outer circumferential wall of
5 the carrier.

1 17. The planetary gear structure according to Claim 13, further
2 comprising a plurality of stopper plates, each pinion shaft being engaged by
3 only a single one of the stopper plates.

1 18. The planetary gear structure according to Claim 13, further
2 comprising a plurality of stopper plates, each pinion shaft being engaged by
3 two of the stopper plates.

1 19. The planetary gear structure according to Claim 13, further
2 comprising a plurality of stopper plates, the plurality of pinion shafts
3 comprising more than three pinion shafts.

1 20. The planetary gear structure according to Claim 13, further
2 comprising a plurality of stopper plates, the plurality of pinion shafts being
3 no more than three pinion shafts.